What is claimed is:

1. A method for alleviating the tissue destructive effects associated with the inflammatory response to tissue injury in a mammal, the method comprising the step of:

providing to the injured tissue a therapeutically effective concentration of a morphogen sufficient to substantially inhibit or reduce the tissue damage resulting from said inflammatory response.

2. The method of claim 1 where said step of providing a therapeutically effective morphogen concentration to said injured tissue comprises the step of administering a therapeutically effective concentration of a morphogen to said mammal.

3. The method of claim 1 where said step of providing a therapeutically effective morphogen concentration to said injured tissue comprises the step of administering to said mammal an agent that stimulates <u>in vivo</u> a therapeutically effective concentration of an endogenous morphogen.

4. The method of claim 1 wherein said step of providing a therapeutically effective concentration of a morphogen is conducted prior to reduction or interruption of blood flow to the tissue.

5. The method of claim 1 wherein said step of providing a therapeutically effective concentration of a morphogen is conducted after

reduction or interruption of blood flow to the tissue and before reperfusion.

6. The method of claim 1 wherein said step of providing a therapeutically effective concentration of a morphogen is conducted following ischemia-reperfusion injury.

7. The method of claim 1 wherein said said step of providing a therapeutically effective concentration of a morphogen is conducted following hyperoxia injury.

8. The method of claim 1 wherein said morphogen is provided to said tissue prior to said tissue injury.

9. The method of claim 1 wherein said step of providing a therapeutically effective concentration of a morphogen is conducted prior to ischemia-reperfusion injury.

10. The method of claim 1 wherein said tissue damage results from an abnormal immune response in said mammal.

11. The method of claim 1 wherein said tissue damage is associated with an inflammatory disease.

12. The method of claim 11 wherein said inflammatory disease is an autoimmune disease.

13. The method of claim 11 wherein said inflammatory disease comprises arthritis, psoriasis, dermatitis or diabetes.

14. The method of claim 13 wherein said arthritis is rhematoid, degenerative or psoriatic arthritis.

15. The method of claim 12 wherein said inflammatory disease comprises an airway inflammation in a mammal.

16. The method of claim 15 wherein said airway inflammation comprises chronic bronchitis, emphysema, idiopathic pulmonary fibrosis or asthma.

17. The method of claim 12 wherein inflammatory disease comprises a generalized acute inflammatory response.

18. The method of claim 17 herein said inflammatory disease comprises adult respiratory distress syndrome.

19. The method of claim 1 wherein said tissue damage is to a transplanted organ or tissue.

20. A method for reducing tissue damage associated with ischemia-reperfusion injury in a human, the method comprising the step of:

providing to the injured tissue a therapeutic concentration of a morphogen sufficient to alleviate the damage associated with said injury.

21. A method for reducing the tissue damage associated with hyperoxia injury in a human, the method comprising the step of:

providing to the injured tissue a therapeutic concentration of a morphogen sufficient to alleviate the damage associated with said injury.

22. The method of claim 20 or 21 wherein said step of providing a therapeutically effective morphogen concentration to said injured tissue comprises the step of administering a therapeutically effective concentration of a morphogen to said mammal.

Sub A4 23. The method of claim 20 or 21 wherein said step of providing a therapeutically effective morphogen concentration to said injured tissue comprises the step of administering to said mammal an agent that stimulates <u>in vivo</u> a therapeutically effective concentration of an endogenous morphogen.

24. The method of claim 1, 20 or 21 wherein said tissue is lung tissue, cardiac tissue, hepatic tissue or renal tissue.

25. The method of claim 6, 9, or 20 wherein said ischemic-reperfusion injury results from cardiac arrest, preliminary occlusion, arterial occlusion, coronary occlusion or occlusive stroke.

26. The method of claim 1, 20 or 21 wherein said morphogen comprises an amino acid sequence sharing at least 70% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

27. The method of claim 26 wherein said morphogen comprises an amino acid sequence sharing a last

80% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, BMP3(fx), BMP5(fx), BMP6(fx), Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

28. The method of claim 1, 20 or 21 wherein said morphogen comprises an amino acid sequence having greater than 60% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

29. The method of claim 28 wherein said morphogen comprises an amino acid sequence having greater than 65% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

30. The method of claim 29 wherein said morphogen comprises an amino acid sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1), including allelic and species variants thereof.

31. The method of claim 1, 20 or 21 wherein said morphogen comprises an amino acid sequence defined by Generic Sequences 1, 2, 3, 4, 5 or 6 (Seq. ID Nos. 1, 2, 3, 4, 30 or 31).

32. The method of claim 1, 20 or 21 wherein said morphogen comprises an amino acid sequence defined by OPX (Seq. ID No. 29).

33. A method for reducing the tissue injury associated with the reduction or interruption of blood flow to an organ or tissue in a clinical procedure, the method comprising the step of providing a therapeutic concentration of a morphogen to said

organ or tissue prior to the interruption of blood flow.

34. A method for reducing the tissue injury associated with the reduction or interruption of blood flow to an organ or tissue in a clinical procedure, the method comprising the step of providing a therapeutic concentration of a morphogen to said organ or tissue after the reduction or interruption of blood flow to said organ or tissue.

35. The method of claim 33 or 34 wherein said clinical procedure is a carotid enterectomy, a coronary artery bypass, a tissue grafting procedure, an organ transplant, or a fibrinolytic therapy.

36. The method of claim 33 or 34 wherein said morphogen is administered parenterally.

37. The method of claim 33 or 34 wherein said morphogen is administered prophylactically.

38. A pharmaceutical composition for use in alleviating the injury associated with tissue exposure to toxic oxygen concentrations comprising a therapeutically effective amount of a morphogen in admixture with a free oxygen radical inhibiting agent or an anticoagulent.

39. A pharmaceutical composition for topical administration comprising a therapeutically effective concentration of a morphogen in admixture with a dermatologically acceptable carrier.

40. A pharmaceutical composition for topical administration to a tissue comprising a therapeutically effective concentration of a morphogen dispersed in a biocompatible, non-irritating tissue surface adhesive.

41. The composition of claim 40 wherein said adhesive comprises hydroxypropylcellulose.

42. The composition of claim 38, 39 or 40 wherein said morphogen comprises an amino acid sequence sharing at least 70% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

43. The composition of claim 42 wherein said morphogen comprises an amino acid sequence sharing a last 80% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, BMP3(fx), BMP5(fx), BMP6(fx), Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

44. The composition of claim 38, 39 or 40 wherein said morphogen comprises an amino acid sequence having greater than 60% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

45. The composition of claim 44 wherein said morphogen comprises an amino acid sequence having greater than 65% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

46. The composition of claim 45 wherein said morphogen comprises an amino acid sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1), including allelic and species variants thereof.

47. The composition of claim 38, 39 or 40 wherein said morphogen comprises an amino acid sequence defined by Generic Sequences 1, 2, 3, 4, 5 or 6 (Seq. ID Nos. 1, 2, 3, 4, 30 or 31).

48. The composition of claim 38, 39 or 40 wherein said morphogen comprises an amino acid sequence defined by OPX (Seq. ID No. 29).